

**Professor Verzani's Syllabus for MTH214/MTHH501 Spring 2006**

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| <b>Descriptive Statistics</b> |                             |                                    |                           |
|-------------------------------|-----------------------------|------------------------------------|---------------------------|
| 1/30                          | 1.1                         | Essentials                         | 1.5,6,7                   |
|                               | 1.2                         | Sources of data                    | 1.19,26                   |
|                               | 1.3                         | Critically appraising data         | 1.32,40                   |
|                               |                             | R introduction                     |                           |
| 2/1                           | 2.1                         | Types of data                      | 2.5,8                     |
|                               | 2.2                         | Categorical data                   | 2.22,23,24,34             |
|                               | 2.3                         | Numerical data                     | 2.39,53,56                |
|                               | 2.4                         | Location                           | 2.59,65,67,75             |
| 2/6                           | 2.5                         | Variation                          | 2.79,80,84,95             |
|                               | 2.6                         | Shape                              | 2.96,100,108              |
|                               |                             | R for Graphics                     |                           |
| 2/8                           | 3.2                         | Scatterplots                       | 3.14,19,20                |
|                               | 3.3                         | Correlation                        | 3.28,32,33                |
| 2/13                          |                             | College Closed                     |                           |
| 2/15                          | 3.4                         | Least squared regression           | 3.43,49,50,52,57          |
|                               | 3.5                         | Resistant regression               |                           |
| <b>Probability Concepts</b>   |                             |                                    |                           |
| 2/21                          | 4.1                         | Basic concepts                     | 4.4,5,9,10,19,22          |
|                               | 4.2                         | Probability Laws                   | 4.30,37,39,45             |
|                               |                             | R for EDA                          |                           |
| 2/22                          | 4.3                         | Random variables                   | 4.55,60,66,70             |
|                               | 4.4                         | Binomial distribution              | 4.85,91,95,100            |
| 2/27                          | 4.5                         | Normal distribution                | 4.107,111,115,116,117,124 |
|                               | 5.1                         | Sampling distributions             | 5.1,6,11,13               |
|                               |                             | R for probability                  |                           |
| 3/1                           | 5.2                         | Sampling distribution of $\hat{y}$ | 5.14,18,25,29,30          |
| 3/6                           | 5.3                         | Sampling distribution of $\hat{p}$ | 5.41,44,47,50             |
|                               | 5.4                         | Other sampling distributions       | 5.59,6                    |
|                               |                             | Review                             |                           |
| 3/8                           | <b>Test 1, chapters 1-4</b> |                                    |                           |

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| <b>Statistical Inference</b> |   |                              |                  |
|------------------------------|---|------------------------------|------------------|
| 3/13                         | 6.1   | Data analysis                | 6.4,5,7,13       |
|                              | 6.2   | Parameter, estimation        | 6.16,20,21,24    |
|                              |   | R for sampling distributions |                  |
| 3/15                         | 6.3   | Estimating parameters        | 6.31,32,35,39    |
|                              | 7.1   | CI for $\pi$                 | 7.3,7,9,12,16    |
| 3/20                         | 7.3   | CI for $\mu$                 | 7.22,36,37,38,39 |
|                              |   | R for CIs                    |                  |
| 3/22                         | 8.1   | Significance tests           | 8.3,6,8,9,11,12  |
|                              | 8.2   | test for $\pi$               | 8.24,25,30,36    |
| 3/27                         | 8.3   | Test for $\mu$               | 8.39,42,47,49,51 |
|                              | 8.4   | test for median              | 8.60,62,69       |
|                              |   | R for $t$ -tests             |                  |
| 3/29                         | 9.1   | Difference of parameters     | 9.1,7,9          |
|                              | 9.2   | $H_0 : \pi_1 - \pi_2$        | 9.16,20,22       |
| 4/3                          | 9.3   | $H_0 : \mu_1 = \mu_2$        | 9.32,35,36,38,44 |
|                              |   | Review                       |                  |
| 4/5                          | <b>Test 2, chapters 5-8</b>                   |                              |                  |
| 4/10                         | 9.4   | Equal variance assumption    | 9.50,51,55       |
|                              | 9.5   | Matched samples              | 9.63,65,67       |
| 4/24                         | 11.1  | Regression                   | 11.4,6,11        |
|                              | 11.2  | Inference, $\beta_1$         | 11.13,17,21      |
|                              |   | R for regression             |                  |
| 4/26                         | 11.2  | Inference, ANOVA             |                  |
|                              | 11.3  | Estimation, prediction       | 11.26,32,38      |
| 5/1                          | 11.4  | Multiple regression          | 11.41,44,47      |
|                              | 11.5  | Model Assumptions            | 11.60,63         |
|                              |   | R for regression             |                  |
| 5/3                          | 12.2  | One-way ANOVA                | 12.3,4,5,15      |
| 5/8                          | 12.4  | Kruskal-Wallis test          | 12.37,38,1,42    |
|                              |   | Review for test 3            |                  |
| 5/10                         | <b>Test 3, chapters 9,11-12</b>               |                              |                  |
| 5/15                         | Review for final exam                         |                              |                  |
| 5/17                         | Review for final exam                         |                              |                  |
| 5/22???                      | <b>Final Exam. Exact Date to be announced</b> |                              |                  |